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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/576,211	05/23/2000	Katsunori Yanagida	NOK-004	2885

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EXAMINER

MERCADO, JULIAN A

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 01/16/2002

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/576,211

Applicant(s)

YANAGIDA ET AL.

Examiner

Mercado A Julian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-80 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-80 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 May 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the instant first and second carbon materials wherein the second carbon material coats the first carbon material must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-80 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 12, 27, 38, 53 and 65 all recite the limitation "the surface thereof" in, e.g., line 3 of claim 1. There is insufficient antecedent basis for this limitation in the claim. Further, it is unclear if Applicant is claiming an inner or outer surface thereof of the core, which is interpreted to be either an inner core or outer core. The examiner notes that interpretation of the claims was

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without benefit of Figures showing either an inner or outer surface of either an outer or inner core, respectively.

Claims 2-11, 13-26, 28-37, 39-52, 54-64 and 66-80 are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon a rejected base claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 12, 13, 27, 28, 38, 39, 53, 54, 64-66 and 80 are rejected under 35

U.S.C. 102(b) as being anticipated by Kawakami *et al* (U.S. Pat. 5,702,845).

To the extent that the claims are understood by the examiner for the reasons discussed under 35 U.S.C. 112, 2nd paragraph (discussion above), Kawakami teaches a first carbon material [100] and a second carbon material [102] coating its inner surface. (Col. 4 line 53-55, col. 6 line 11, col. 7 line 1 *et seq*) The second material contains boron and nitrogen such as found in borane-trimethylamine complex.

As to the first carbon material not containing boron or nitrogen, it is reasonably presumed that the first carbon material in Kawakami's invention is free from boron and nitrogen as the

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second carbon material, separate and distinct from the first carbon material, is specifically disclosed to contain the boron or nitrogen. (Col. 4 line 14 *et seq*)

The positive electrode consists mainly of a lithium-containing metal oxide. (Col. 7 lines 43-60)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-11, 17-26, 32-37, 43-52, 58-63 and 70-79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami *et al* as applied to claims 1, 2, 12, 13, 27, 28, 38, 39, 53, 54, 64-66 and 80 above.

The teachings of Kawakami are discussed above.

Kawakami does not explicitly teach the wt % of boron or nitrogen or the wt % of the second carbon material. It is asserted, however, that absent of unexpected results, these features are optimizable parameters for result-effective variables. Discovering optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. The wt % of boron or nitrogen and the wt % of the second carbon material containing these elements is considered

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result-effective for reasons such as optimization of lithium ion intercalation within the host material.

Claims 3, 4, 14, 15, 29, 30, 40, 41, 55, 56, 67 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami *et al* as applied to claims 1, 2, 12, 13, 27, 28, 38, 39, 53, 54, 64-66 and 80 above, in view of Takami *et al* (U.S. Pat. 5,795,678).

The teachings of Kawakami are discussed above.

Kawakami does not explicitly teach the first carbon material to have the instant 3.35 Å to 3.38 Å spacing d_{002} between (002) planes and at least 300 Å or 1000 Å in the size Lc of crystallites in the c-axis direction. However, Takami teaches that this spacing is desired as the theoretical capacity of graphite, i.e. carbon material, and that the size Lc is desired to be infinitely large. Thus, the skilled artisan would have found obvious to employ the instant spacings in Kawakami's invention for reasons such as achieving optimal electrical capacity for the carbon material.

Claims 5, 16, 31, 42, 57, and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami *et al* as applied to claims 1, 2, 12, 13, 27, 28, 38, 39, 53, 54, 64-66 and 80 above, in view of Tamaki *et al* (U.S. Pat. 5,698,341).

The teachings of Kawakami are discussed above.

Kawakami does not explicitly teach the second carbon material to have the instant 3.37 Å to 3.90 Å spacing d_{002} between (002) planes. However, Tamaki teaches that for a carbon material containing boron is desired to have the instant spacings. (Col. 4 line 18 *et seq*) Thus, the skilled

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artisan would have found obvious to employ the instant spacings in Kawakami's invention for reasons such as increasing the charge and discharge capacities of the electrode material.

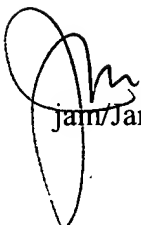
Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP 3-165463 (Abstract only), JP 5-290843 and JP 9-306495 are cited to teach carbon materials having boron and/or nitrogen atoms therein.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian A. Mercado whose telephone number is (703) 305-0511.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gabrielle Brouillette, can be reached at (703) 308-0756. The official fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599. The unofficial fax number is (703) 306-3429.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.



Jan/January 11, 2002



STEPHEN KALAFUT
PRIMARY EXAMINER
GROUP
1700